

March 1, 1961

## LOW MU POWER TRIODE TYPE 7328A

The 7328A is a three element tube designed for service as a modulator or AF amplifier. Electrical characteristics make it particularly suitable for Class AB<sub>1</sub> or AB<sub>2</sub> circuits. The anode is capable of dissipating 20 KW CCS with forced air cooling. The cathode is a single phase, thoriated tungsten filament.

### ELECTRICAL:

|                                          |                             |                |
|------------------------------------------|-----------------------------|----------------|
| Cathode .....                            | Thoriated Tungsten Filament |                |
| Filament:                                |                             |                |
| Voltage .....                            | 7.0                         | Volts          |
| Current .....                            | 245                         | Amperes        |
| Starting Current (max.) .....            | 1000                        | Amperes        |
| Amplification Factor: Grid Volts = -450, |                             |                |
| Plate Amperes = 5.0 .....                | 6                           |                |
| Maximum Usable Cathode Current .....     | 60                          | Amperes        |
| Direct Interelectrode Capacitances:      |                             |                |
| Grid to Plate .....                      | 78                          | $\mu\text{ft}$ |
| Grid to Filament .....                   | 68                          | $\mu\text{ft}$ |
| Plate to Filament .....                  | 7                           | $\mu\text{ft}$ |

### MECHANICAL:

|                                            |                      |      |      |                      |
|--------------------------------------------|----------------------|------|------|----------------------|
| Mounting Position . . . . .                | Vertical, Anode Down |      |      |                      |
| Cooling:                                   |                      |      |      |                      |
| Type . . . . .                             | Forced Air           |      |      |                      |
| Amount Required:                           |                      |      |      |                      |
| Plate Dissipation . . . . .                | 10                   | 15   | 20   | Kilowatts            |
| Air Flow . . . . .                         | 800                  | 1250 | 1700 | CFM                  |
| Static Pressure . . . . .                  | 2.0                  | 3.5  | 6.0  | In. H <sub>2</sub> O |
| Maximum Incoming Air Temperature . . . . . | 45 °C                |      |      |                      |
| Maximum Seal Temperature . . . . .         | 180 °C               |      |      |                      |
| Net Weight . . . . .                       | 72 Pounds            |      |      |                      |

### MAXIMUM RATINGS:

#### Absolute Maximum Values

|                                  |     |      |           |
|----------------------------------|-----|------|-----------|
| DC Plate Voltage .....           | 10  | max. | Kilovolts |
| DC Plate Current .....           | 10  | max. | Amperes   |
| Plate Power Input (Note 1) ..... | 50  | max. | Kilowatts |
| Plate Dissipation (Note 1) ..... | 20  | max. | Kilowatts |
| Grid Dissipation .....           | 300 | Max. | Watts     |
|                                  | 800 |      |           |

### TYPICAL OPERATING CHARACTERISTICS:

(Values for Two Tubes)

#### AF Power Amplifier & Modulator Service

#### Class AB<sub>1</sub> Operation

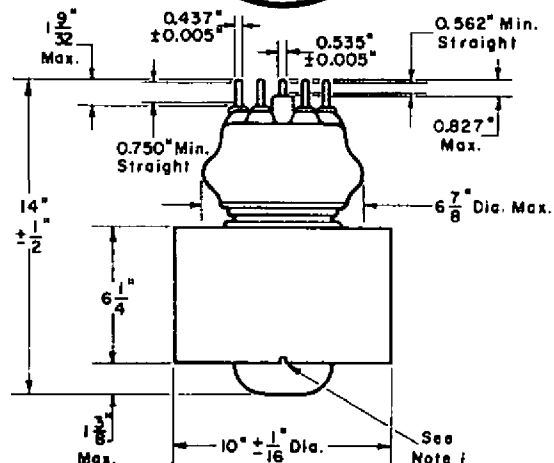
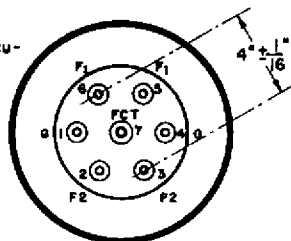
|                                 |       |       |       |           |
|---------------------------------|-------|-------|-------|-----------|
| DC Plate Voltage .....          | 8     | 9     | 10    | Kilovolts |
| DC Grid Voltage .....           | -1700 | -1900 | -2200 | Volts     |
| Peak AF Grid-to-Grid Voltage .. | 3350  | 3750  | 4350  | Volts     |
| Zero Signal DC Plate Current .. | 0.5   | 0.5   | 0.5   | Amperes   |
| Maximum Signal DC Plate         |       |       |       |           |
| Current .....                   | 6.4   | 7.4   | 8.2   | Amperes   |
| Effective Plate-to-Plate Load   |       |       |       |           |
| Impedance .....                 | 2400  | 2400  | 2400  | Ohms      |
| Driving Power .....             | 0     | 0     | 0     | Watts     |
| Maximum Signal Power Output ..  | 30    | 39.5  | 49.5  | Kilowatts |

#### Class AB<sub>2</sub> Operation

|                                 |       |       |       |           |
|---------------------------------|-------|-------|-------|-----------|
| DC Plate Voltage .....          | 8     | 9     | 10    | Kilovolts |
| DC Grid Voltage .....           | -1700 | -1900 | -2200 | Volts     |
| Peak AF Grid-to-Grid Voltage .. | 3700  | 4100  | 4700  | Volts     |
| Zero Signal DC Plate Current .. | 0.5   | 0.5   | 0.5   | Amperes   |
| Maximum Signal DC Plate         |       |       |       |           |
| Current .....                   | 7.4   | 8.4   | 9.3   | Amperes   |
| Effective Plate-to-Plate Load   |       |       |       |           |
| Impedance .....                 | 2400  | 2400  | 2400  | Ohms      |
| Driving Power .....             | 50    | 55    | 61    | Watts     |
| Maximum Signal Power Output ..  | 40    | 51    | 65    | Kilowatts |

#### Note 1:

Radial Key Slot  
1" X 1/4" X 5/16" Deep,  
Located Perpendicular to Line Thru  
Grid Terminals  
±2.5°.



High Vacuum Amplifier Section

WESTINGHOUSE ELECTRIC CORPORATION, ELECTRONIC TUBE DIVISION, ELMIRA, NEW YORK

## PULSE SERVICE

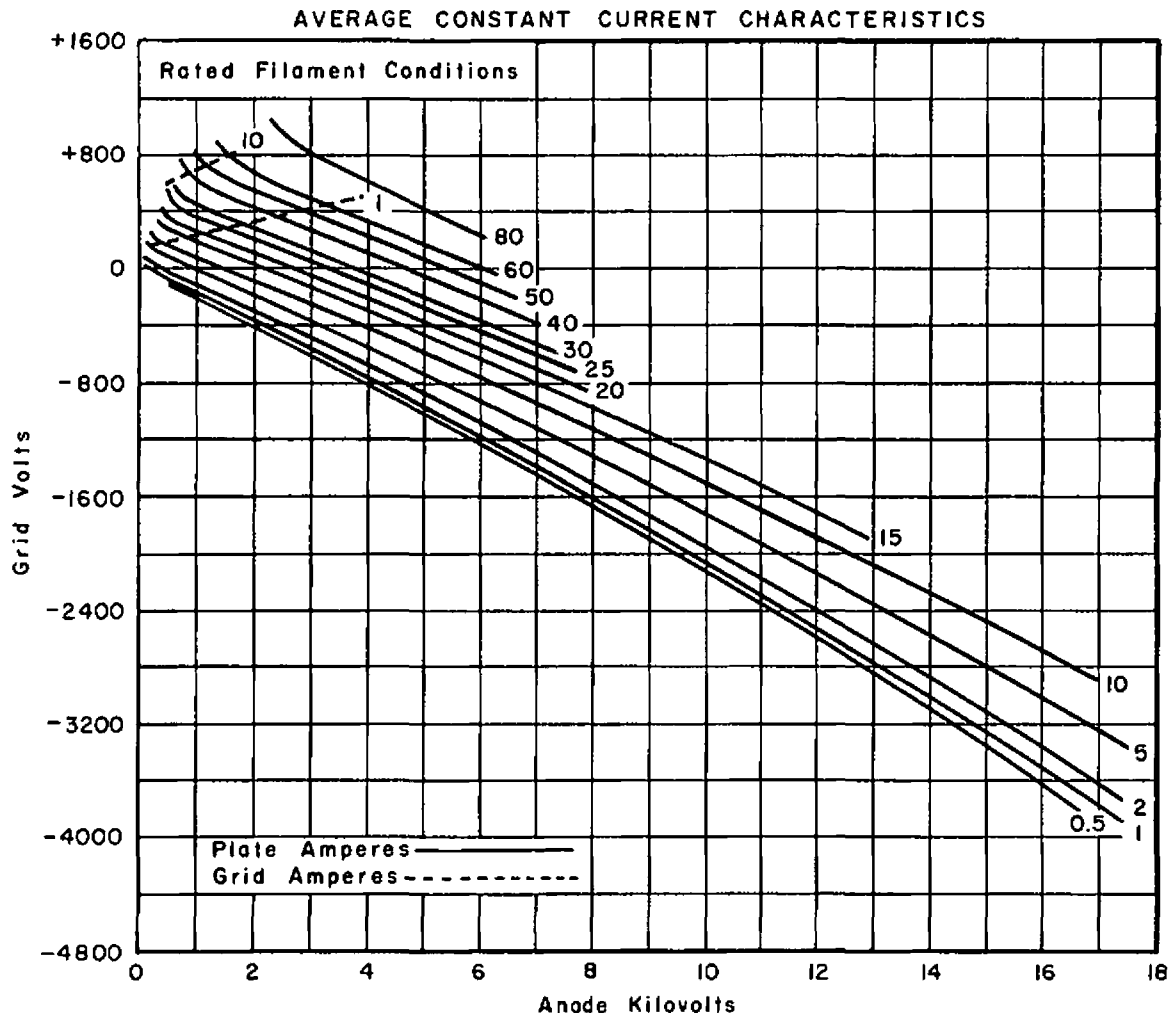
## MAXIMUM RATINGS:

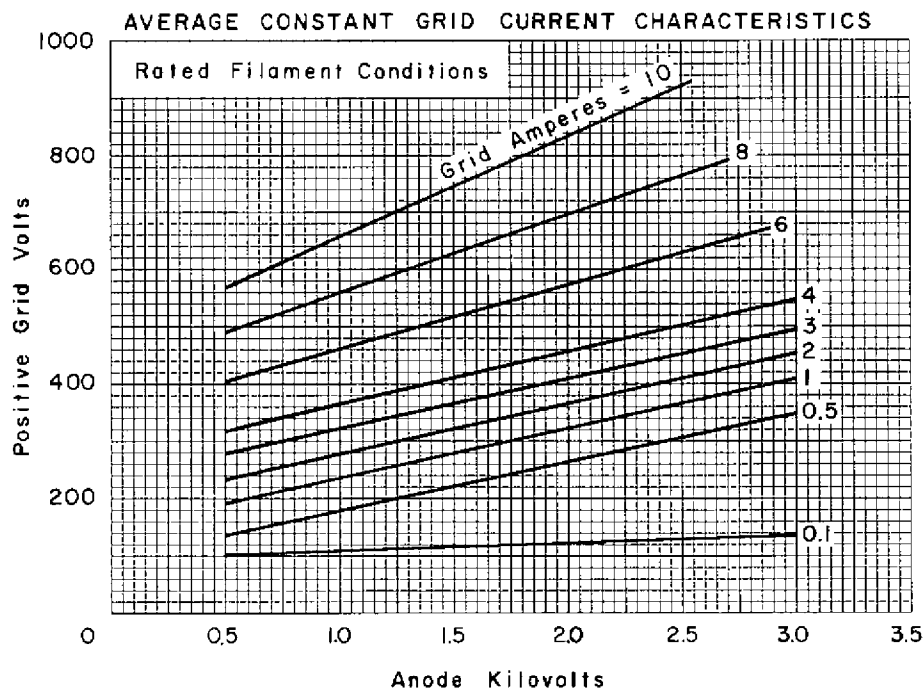
## Absolute Maximum Values

|                                     |       |      |           |
|-------------------------------------|-------|------|-----------|
| DC Plate Voltage                    | 20    | max. | Kilovolts |
| DC Grid Voltage                     | -6000 | max. | Volts     |
| Peak Positive Grid Voltage          | 2500  | max. | Volts     |
| Peak Pulse Plate Current            | 88    | max. | Ampères   |
| Peak Pulse Grid Current             | 12    | max. | Ampères   |
| Plate Dissipation                   | 800   | max. | Kilowatts |
| Grid Dissipation                    | 300   | max. | Watts     |
| Pulse Length                        | 2000  | max. | μseconds  |
| Duty Factor                         | 0.01  | max. |           |
| Peak Pulse Cathode Current (Note 2) | 100   | max. | Ampères   |

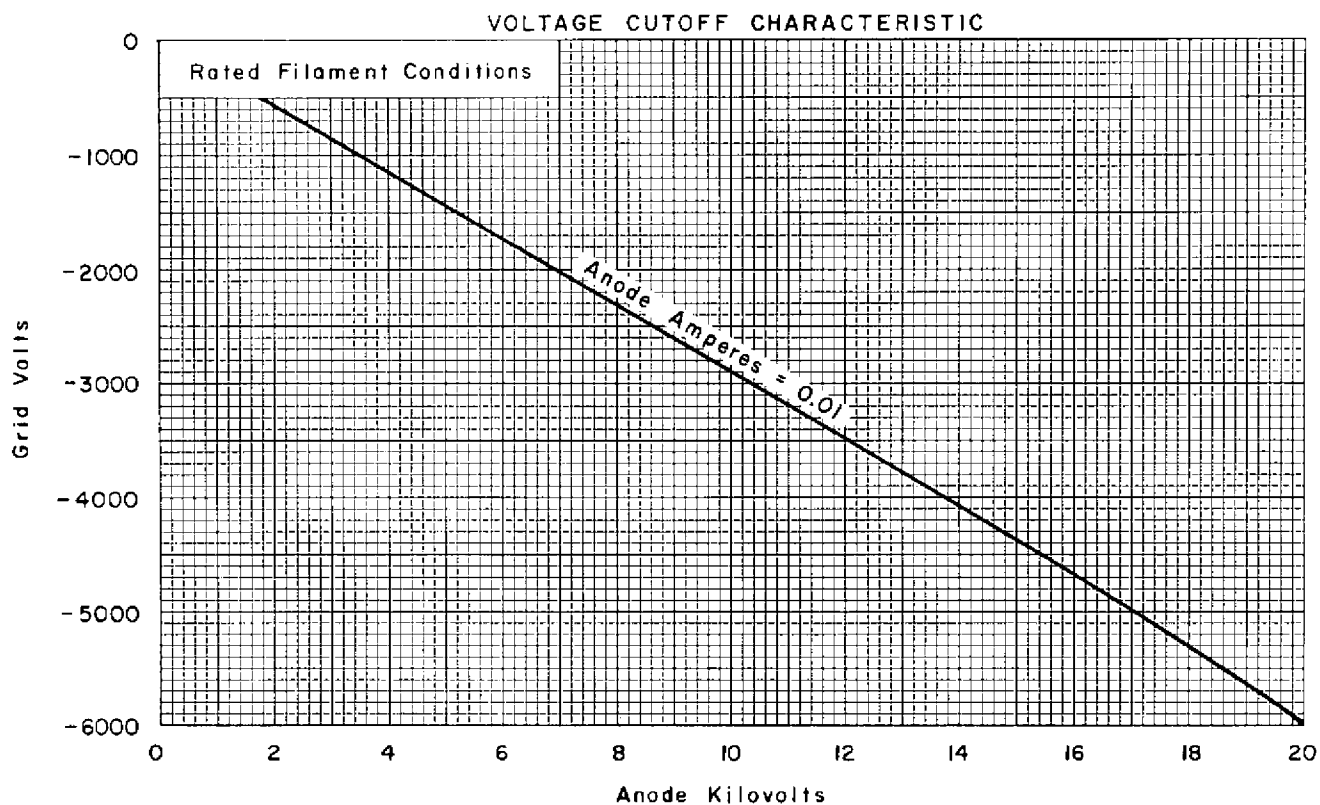
X-Ray Warning: The Maximum Ratings of the 7328A permit operation at voltages in excess of 16 KV. Therefore equipment design considerations should include the possible generation of soft x-rays.

1. Averaged over any AF cycle of sine wave form.
2. A maximum of 160 ampères is permitted with 7.6 volts applied to filament. Continuous operation at elevated filament temperature will reduce length of service received.

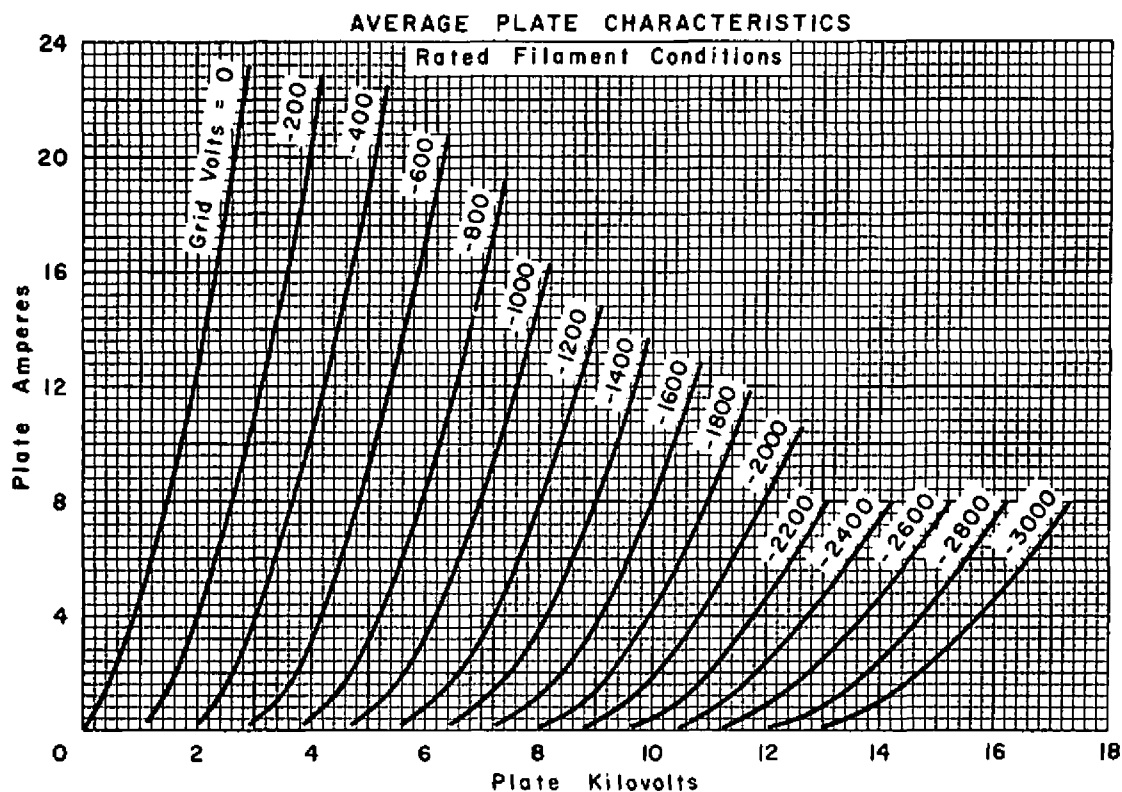




CE-A 1697



CE-A 1599



CE-A1846